
**Re-evaluating Multifactor Leadership Questionnaire Construct:
A Validation Study in the Pharmaceutical Sector of Punjab,
Pakistan Context**

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Abstract

Current study inspected the psychometric properties of multifactor leadership questionnaire (MLQ) in pharmaceutical sector of Pakistan. Data was collected from 370 employees working in pharmaceutical companies in Lahore region of Punjab, Pakistan. Data was analyzed by using Smart-PLS 2.0 statistical software. The results of the current study demonstrated that all the leadership styles in MLQ were adequately relevant according to the Pakistani context. The results further revealed that each leadership style showed optimum internal consistency reliability, convergent validity and discriminant validity. Based on the current study results, it is highly suggested that the use of MLQ instrument would be very useful in order to measure the leadership styles in Pakistan, particularly in pharmaceutical sector.

Keywords: Leadership Styles; Multifactor Leadership Questionnaire; Psychometric Analysis

Abstrak

Penelitian ini mengeksplorasi kepemimpinan multifaktor psikometrik sektor farmasi di Pakistan. Data dikumpulkan dari 370 karyawan yang bekerja di perusahaan farmasi di wilayah Lahore, Punjab, Pakistan. Teknik analisis data menggunakan Smart-PLS 2.0. Hasil penelitian menunjukkan bahwa semua gaya kepemimpinan dengan menggunakan multifactor leadership questionnaire relevan sesuai dengan konteks Pakistan. Hasil lebih lanjut mengungkapkan bahwa masing-masing gaya kepemimpinan menunjukkan reliabilitas konsistensi internal yang optimal, validitas konvergen dan validitas diskriminan. Berdasarkan penelitian ini disarankan bahwa penggunaan instrumen Multifactor Leadership Questionnaire bermanfaat untuk mengukur gaya kepemimpinan di Pakistan, khususnya di sektor farmasi.

Kata kunci: Gaya Kepemimpinan; Kuesioner Kepemimpinan Multifaktor; Analisis Psikometrik

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Introduction

Leadership alludes to setting the direction or creating vision alongside methodologies that are important to deliver the progressions which are required for accomplishing an objective (Long & Thean, 2011). Moreover researchers portrayed that leadership style is a methodology of correspondence of a leader who endeavors to affect his or her devotees to accomplish a typical target (Yukl, 2005 & Northouse, 2010). As per Hashim & Mahmood, (2012) the part of leadership is to make a domain that can change representative disposition towards organization. Thus, Wallace et al., (2013) expressed that the leadership can empower workers towards their jobs. The contention is upheld expressing that workers are more dedicated in organizations when fortified by the leadership. Subsequently, it is important to think about the role of leadership styles to create employee attitude and behavior.

Extensive measure of literature is accessible on various aspects of leadership (Bass and Stogdill, 1990). Notwithstanding, a few researchers have characterized leadership in an unexpected way (Mora and Ţiclău, 2012; Mullins, 1998) yet the substance of these definitions continues as before. It begins from understanding employees, communicating adequately, defining objective and targets, guaranteeing to accomplish those set objectives and more important investigating employee inspiration (Yukl, 2005; Northouse, 2010). The compelling leadership prompts viable employee and organizational execution, expanded worker inspiration, and diminished turnovers (Emery and Barker, 2007; Clark et al., 2009; Eunyong 2007).

The role of leadership is additionally exceptionally basic in making organizational atmosphere accordingly look into on this stream is an endless procedure (Bass 1990; Jensen, Vera and Crossan, 2009). The above writing grounds have recommended that the role of leadership (in any frame) is same as either communicating successfully or understanding employees or setting and meeting general organizational objectives. Consequently, it can be deduce that leadership is fundamental for making organizational atmosphere that empowers employees to perform well. Empirical outcomes from past investigations have sent conclusions proposing that organizational atmospheres vary among organizations and nations hence leadership phenomenon also vary (Bass and Avolio, 1997). Along these lines, it characterizes the need to additionally examine the impact of leadership over organizations and their employees. Moreover, the mainstream writing broadly acknowledges three prevailing leadership styles that incorporate transformational, transactional and laissez-faire. Be that as it may, there remains a concern with respect to the, viability of each of these leadership styles in shifting organizational cultures and environments.

Aside from the above reasons, there have likewise been debates in the writing of leadership with respect to its effective measurement. Authors have recommended distinctive approaches to gauge the employee observation concerning viable leadership styles (Ogbonna, and Harris, 2000; Vigoda-Gadot, 2007; Oreg, and Berson, 2011). Not with standing these grounds, ponders particularly concentrating on measuring leadership styles with multifac-

tor leadership questionnaire have additionally given befuddling results about terms of the number of items for compelling measurement of leadership styles (Bass, 1995; Tejeda, Scandura and Piliai, 2001; Barnett et al., 2001; Antonakis et al. 2003; Bass and Avolio 1995). Along these lines, in accordance with the above elaborations, the present examination conducted for endeavoring the current body of knowledge on the leadership styles literature by inspecting the psychometric properties of multifactor leadership questionnaire construct in the pharmaceutical sector of Punjab, Pakistan. For this purpose, present study endeavored to address the accompanying research question: What are the psychometric properties of multifactor leadership questionnaire and its structure factor in the Pakistani context particularly in pharmaceutical sector.

Transformational Leadership

While talking about the critical role of transformational leadership Williams et al., (2007) expressed that this sort of leadership would reap trust, loyalty, admiration, and regard among their workers for leadership. This style of leadership effects organizations positively including, impact on employee commitment (Dunn, Dastoor, and Sims, 2012; Joo, Jun-Yoon and Jeung, 2012); increasing productivity (Eunyoung, 2007) improving worker confidence (Bass and Riggio, 2006). Strikingly, this kind of leadership additionally urges workers to outperform their normal execution (Andrews, Richard, Robinson, Celano, and Hallaron, 2012; Miiia, et al., 2006). Transformation leadership style can

possibly standardize changes at the organizational level (Bass and Avolio, 1994). Consequently, the literature on organizational performance witnesses that this style of leadership is conceivably critical for organizations for sustainable performance.

Transactional Leadership

The transactional leadership gives lucidities about tenets and principles for securing business as usual to their workers; they likewise adjust mistakes of the employees and ensure close observing for ongoing progress (Bass and Avolio, 1995; Bass, 1985). The transactional leadership is said to have preventive-centered approach (Higgings, 1997); they lean toward stability (Liberman et al., 1999) keep away from errors (Higgings et al., 2001) and search for short term benefits (Förster, Liberman and Higgins, 2005). Decisively, it can be attested that this approach of leadership empowers devotees for completing their particular errands with a preventive approach; they likewise endeavor towards worker compliance (Bass and Avolio, 1997). Research likewise clearly communicates that this approach of leadership can form trust-based relationship amongst leader and adherent because of its emphasis on desire illuminations and prizes (Bass et al., 2003). They fulfill supporters with the authenticity of prizes, raises, and consideration to their immediate needs (Northouse, 2010; Boehnke et al., 2003). This leadership style gives exchange-relationship to its adherents; subsequently making an exchange compelling (Bass and Avolio, 1990). Remarkable research states and

acknowledges the effect of transactional leadership style on organizational outcomes (Bass et al., 2003; Podsakoff et al., 1990). Subsequently it can be reasoned that understanding transactional leadership style is additionally of significance and along these lines, can't be overlooked in the present literature.

Laissez-faire Leadership

The leadership styles are related with respect to their individual impact over their subordinates (Mullins, 1998). It is characterized as having no-administration set up (Mullins, 1998); was calling it the nonattendance of authority or its shirking. It could hence be drawn upon this that the Laissez-faire leaders are reluctant in basic leadership, hesitant in taking activities, and are discovered truant where they are required. Past researchers underline that this nonattendance of any leadership style issue (transformational or transactional) ought to be addressed differently (Bass, 1998 and Avolio, 1999).

Under this approach of leadership the group individuals are given the authority for settling on choices at their own (Mondy and Premeaux, 1995). This style of leadership which "abandons duties abstain from deciding" (Luthans, Avolio, Walumbwa, and Li, 2005) is compelling where subordinates are specialists in their general vicinity of operation as well as are profoundly energetic experts. Transactional leaders gives complete flexibility to the groups, Provide important materials, take an interest just to answer queries, and abstained from giving criticism (Bartol, Martin and Kromkowski, 2003). In spite of the impediments of the degree and

meaning of this leadership style; it has not been disregarded in the organizational management literature.

Methods

Population and Data Collection Procedure

The data was collected from pharmaceutical employees of Punjab province. The total population of employees working in pharmaceutical companies in Punjab was 11000 (Drug Regulatory Authority of Pakistan). It is practically impossible to collect data from the whole population. Hence, an appropriate sample was identified by applying the Krejcie and Morgan (1970) standards. By following the Krejcie and Morgan (1970) sampling table, a total of 370 responses were required to complete the study with the generalizable results. However, due to low response rate in developing countries (Bartlett & Kotrlik, 2001), the number of responses required was doubled and 740 questionnaires were distributed.

Sampling Technique

The present study was carried to re-validate the MLQ construct by collecting responses from the pharmaceutical companies of Punjab, Pakistan and pharmaceutical employees were selected as respondents for the present study. Area cluster sampling technique was applied due to lack of respondents' record in each company from Drug Regulatory Authority of Pakistan. By following the procedure of Gay and Diehl, (1992), first the population of the study was identified. Secondly, appropriate sample size was identified by using Krejcie and Morgan (1970) table. Thirdly, 6 regions of Punjab were selected as cluster. Fourthly,

an average number of population per cluster (1833) was identified by dividing the total population (11000) by number of clusters (6). Finally, the required number of clusters (0.20) for this study was determined by dividing the sample size (370) by average population per cluster (1833). Hence, 1 cluster was required to complete the current study. In order to select 1 cluster randomly out of 6 clusters the recommendation of Collis and Hussey (2013) was followed and Lahore region as a random cluster was generated by using Microsoft Excel software. Therefore data was collected from the pharmaceutical employees in Lahore, Pakistan region.

Instrument

The primary goal of the present examination was to evaluate the psychometric properties of the multifactor leadership construct. This considered essential because of the way that over a wide span of time literature on measuring adequacy of leadership styles has revealed inconsistencies and varied results (Yukl (1999), Bass and Avolio 1995; Yukl; 2006). In addition, the utilization of MLQ has additionally given uncertain outcomes because of its several versions. Some remarkable researchers asserted that long versions of MLQ are moderately more compelling while others propose the shorter version (Bass, 1985; Boehnke et al, 2003; Antonakis et al, 2003). In this manner, the present investigation designed for surveying the psychometric properties of MLQ (5x-short form) (Bass, 1985) with 36-items for their appropriateness in measuring leadership styles in the pharmaceutical sector in Punjab, Pakistan.

Result

Demographic Profile

Table 1 shows the respondents profile information. The survey included 63.2% male respondents and 36.8% female respondents out of which majority (44.7%) of the respondents were young aged between 20-29 years. The largest group of the respondents (64.4%) was having bachelor degree. 41.5% respondents were having 7-9 years of experience while the second dominant (31.6%) group of respondents were having 4-6 years of experience.

Table 1. Respondents Demographic Profile

	Description	Freq	%
Gender	Male	234	63.2%
	Female	136	36.8
Age	Less than 20 years	20	5.4
	20 - 29 years	165	44.6
	30 - 39 years	89	24.1
	40 - 49 years	74	20
	50 - 59 years	22	5.9
Qualification	Intermediate	38	10.3
	Bachelors	238	64.3
	Masters	88	23.8
	Doctorate	6	1.6
Working Experience	Less than 1 year	1	0.2
	1 - 3 years	55	15
	4 - 6 years	117	31.6
	7 - 9 years	153	41.5
	More than 9 years	44	11.7

Source : Analyzed data, 2017

Table 2. Confirmatory Factor Analysis

Item Code	Item	Values
TF1	My leader/manager instills pride in me for being associated with her/him	0.924
TF2	My leader/manager goes beyond self-interest for the good of staff	0.690
TF4	My leader/manager has my respect	0.929
TF6	My leader/manager emphasizes on the specific importance of having a strong sense of purpose	0.855
TF7	My leader/manager considers moral & ethical consequences of his/her decisions	0.855
TF8	My leader/manager emphasizes on the importance of group missions	0.684
TF9	My leader/manager talks optimistically about the future	0.917
TF11	My leader/manager articulates a compelling vision for the company	0.924
TF12	My leader/manager expresses confidence on goal achievement	0.690
TF13	My leader/manager takes notice of whether or not he/she is appreciated by his/her staff	0.925
TF14	My leader/manager considers deferent perspectives when solving problems	0.929
TF16	My leader/manager suggests new ways to accomplish my work	0.855
TF17	My leader/manager spends time on training and coaching	0.855
TF18	My leader/manager treats me as an individual rather than as member of a group	0.684
TF19	My leader/manager considers me as having different needs/abilities/aspiration	0.917
TF20	My leader/manager helps me to develop my professional strengths	0.855
TS1	My leader/manager provides with assistants an exchange for my effort	0.871
TS2	My leader/manager discusses with specific terms who is responsible for achieving performance targets	0.930
TS4	My leader/manager expresses satisfaction when meeting performance	0.852
TS5	My leader/manager focuses attention on irregularities /mistake deviation from standards	0.834
TS6	My leader/manager gives all attention in dealing with mistake/ complains/ failure	0.927
TS7	My leader/manager keeps track of all mistakes	0.812
TS8	My leader/manager directs my attention towards failures to meet standards	0.741
TS10	My leader/manager waits for things go to wrong before taking action	0.693
TS11	My leader/manager believes in not making changes unless necessary	0.701
TS12	My leader/manager takes action only when problem become serious	0.843
LF2	My leader/manager is absent when needed	0.761
LF3	My leader/manager avoids making decisions	0.844
LF4	My leader/manager delays responding to urgent questions	0.693
Average Variance Extracted (AVE)		0.727 0.651 0.605
Composite Reliability (CR)		0.979 0.935 0.901

TF=Transformational leadership, TS= Transactional leadership, LF= Laissez-faire leadership

Source : Analized data, 2017

Keeping in mind the end goal to decide the adequacy of MLQ in the pharmaceutical sector of Pakistan, PLS path modeling method of data analysis has been adopted by using Smart-PLS 2.0 (Ringle et al., 2005). This structural equation modelling procedure is picking up fame around the world because of its easy to understand approach and other intense mechanics. Next to its various other capable capacities, this approach is very recommended as helpful instrument when the goal of the examination is to test and approve the models (Hair et al., 2012; Henseler et al., 2009). Alluding on the recommendations set forward by Wold, (1975) the present examination embraced Smart-PLS 2.0 for the data analysis. In order to Investigate the nature of the examination and objectives of the present examination; the psychometric properties of the MLQ have been evaluated utilizing measurement model approach. In doing as such, individual item reliability, internal consistency reliability, convergent validity and discriminant validity of the measures were inspected (Henseler, Ringle, and Sinkovics, 2009) and the outcomes are thusly exhibited and discussed in Table 2 and Table 3.

Individual Item Reliability

As per the requirement and nature of the current study, the reliability of each item of the construct was assessed by analyzing the outer loading (Hair et al., 2014). According to Hair et al. (2014) the item loading between 0.60 and 0.70 are adequate to be considered reliable. Hence, as it can be seen in the table 1, 16 items of

transformational leadership style out of 20 showed reliable loading however 4 items showed lower loading; therefore, the items were deleted. Moreover, 2 items of transactional leadership style showed lower loadings; whereas, 10 items showed reliable loadings. Hence, 2 items were deleted and 10 were retained. In addition to transformational leadership and transactional leadership styles, laissez-faire leadership style items showed good reliability scores; however, 1 item was deleted due to lower loading and 3 items were retained. The overall retained items' loadings were between 0.684 to 0.930. Hence, the loadings met the benchmarked criteria.

Internal Consistency Reliability

Internal consistency reliability expresses the degree to which each and every item of a particular construct or sub-construct actually measuring the same variable or concept (Bijttebier et al., 2000). It has been seen in past literature that two widely used methods were followed in order to calculate the internal consistency reliability (i.e. Cronbach's alpha coefficient and Composite reliability). Current study utilized composite reliability method in order to determine the internal consistency reliability (Hair et al., 2011). A scale is being considered adequate in its internal consistency reliability if the composite reliability value is ≥ 0.7 (Hair et al., 2011). As showed in table 2, all three leadership styles' constructs showed adequate internal consistency reliability with the values ranged between 0.901 to 0.979.

Convergent Validity

Convergent validity expresses the degree by which all the items of a particular construct represent the anticipated latent construct and correlate with the other items of the same latent construct (Hair et al., 2016), Average variance extracted (AVE) criteria was used in current study to determine the convergent validity of the scales (Hair et al., 2011). According to Chin (1998), the AVE value should be ≥ 0.5 in order to a scale or sub scales considered as valid. As showed in table 2, the AVE values for all three leadership styles were acceptable with the values 0.727, 0.651 and 0.605 respectively for transformational, transactional and laissez-faire leadership styles.

Discriminant Validity

Discriminant validity expresses the degree to which a concerned latent variable is different from other latent variables (Duarte & Raposo, 2010). Past literature has used most widely used criteria Fornell and Larcker (1981) method in order to determine the Discriminant validity of a latent variable. As per Fornell and Larcker (1981), the square root of AVE of a concerned latent variable should be greater than the correlations among latent variables. Table 3 shows the square root of AVE in bold values and correlations among latent variables in normal values.

In table 3, it can be seen that the square root of AVE (bold value) of each latent construct are greater than the correlations among latent constructs. Hence, all the measures of MLQ construct

have no discriminant validity issue and the values are adequate.

Table 3. Discriminant validity

Latent Constructs				
Transformational leadership		0.852		
Transactional leadership	0.764		0.806	
Laissez-faire leadership	0.625	0.723		0.778

Source : Analyzed data, 2017

Discussion

Bass and Avolio, (1995) presented a refined form of multifactor leadership questionnaire to enable researchers to gauge leadership inside organizational settings. One of the claims of the MLQ improvement was its successful use for measuring leadership in organizations over the varying societies; naming the MLQ measure as a global leadership measurement scale. However, this global measurement scale was mostly developed and empirically tested in developed countries with specific samples and limited industries. In spite of the fact that leadership is essential factor that influences environment, process and execution of an organization. Consequently, seeing how leadership is being seen by employees is crucial in every society in every region of the world regardless of developed or developing. In doing as such, past literature has exhibited various methods for investigating leadership elements and MLQ is one among these. The present examination went for investigating the adequacy of multifactor leadership questionnaire for its viable use in the pharmaceutical sector of Pakistan.

Therefore, in order to fulfill the gap in body of knowledge regarding MLQ, present study attempted to empirically revalidate the multifactor leadership questionnaire developed by Bass and Avolio (1995) in Pakistani health sector context particularly in the pharmaceutical industry of Punjab, Pakistan. As showed in the results all the constructs demonstrated adequate psychometric properties, therefore, MLQ is appropriate in measuring leadership styles in the pharmaceutical sector of Pakistan. Moreover, in past empirical studies MLQ was used mostly in developed countries, hence it motivated the current study purpose to reexamine the psychometric properties of MLQ in developing country context like Pakistan. The results of confirmatory factor analysis, reliability and validity tests showed that the MLQ is effectively measuring any or all leadership styles including transformation leadership, transactional leadership and laissez-faire leadership style in Pakistani context specifically in pharmaceutical sector.

Conclusion

Present study successfully applied the recommendation of Henseler, Ringle and Sinkovics, (2009) to assess the individual item reliability, internal consistency reliability convergent validity and discriminant validity in order to measure the psychometric properties of MLQ measurement scale. Due to the limitation of cost and time, current study was limited in one province of Pakistan, therefore, future researchers should consider broader sample in the same industry or multiple industry comparison.

Moreover, present study recommends future researchers to evaluate and empirically test the leadership styles by using MLQ instrument in Pakistan pharmaceutical sector.

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Appendix

Table 4. Deleted item due to lower loadings

Item Code	Item	Values
TF3	My leader/manager displays sense of power and confidence in me	0.492
TF5	My leader/manager talks only on most important values and beliefs	0.416
F10	My leader/manager gets excited about what needs to be accomplished	0.351
TF15	My leader/manager allows me to look at problems from different angles	0.441
TS3	My leader/manager clarifies my expectation when meeting perform expectation goal	0.225
TS9	My leader/manager do not fail interfere until the problem is serious	0.387
FL1	My leader/manager avoids getting involved when important issues arise	0.342